

Serial No. 09/738,591
60246-116

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Jim Otter
Serial No.: 09/738,591
Filed: December 15, 2001
Group Art Unit: 1762
Examiner: Parker, Frederick John

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Title: A METHOD MAKING A FILM WITH IMPROVED
WETTABILITY PROPERTIES

APPEAL BRIEF

Mail Stop - Appeal Brief
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Subsequent to the filing of the Notice of Appeal on January 3, 2006, Appellant hereby submits its brief. The Commissioner is authorized to charge Deposit Account No. 03-0835 in the name of Carrier Corporation \$500.00 for the appeal brief fee. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C.

REAL PARTY IN INTEREST

The real party in interest is Carrier Corporation, the assignee of the entire right and interest in this Application.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

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Serial No. 09/738,591
60246-116**STATUS OF CLAIMS**

Claims 1-3, 5, 7, 22, 25-26, 29-39 and 41 stand finally rejected under 103(a). Claims 4, 6, 8-21, 23, 24 and 28 have been cancelled. Claims 27 and 40 have been allowed.

STATUS OF AMENDMENTS

All amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

As shown in Figure 1, this invention relates to a method for making a film for use with a heat transfer component. The method includes the steps of applying a plurality of polar particulates 16 to a surface 18 of a heated film 12, then embedding the plurality of polar particulates 16 into the surface 18 of the heated film 12 with a roller 22 and 24, regulating a temperature of the roller 22 and 24 to regulate a temperature of the film 12 and then adding the film 12 to the heat transfer component 100 (page 4, line 14 to page 5, line 2). This basic method is set forth in claim 1.

Claim 7 depends on claim 1 and adds that the method further includes the step of coating an outer surface of the polar particulates 16 with a coating 30 (page 6, lines 4 to 9). Claim 25 depends on claim 1 and adds that the polar particulates 16 are a germicide (page 5, lines 15 to 17). Claim 29 depends on claim 1 and adds that the polar particulates 16 are alumina. Claim 30 depends on claim 1 and adds that the polar particulates 16 are zirconia. Claim 31 depends on claim 1 and adds that the polar particulates 16 are wollastonite. Claim 32 depends on claim 1 and adds that the polar particulates 16 are talc. Claim 36 depends on claim 1 and adds that the polar particulates 16 are titanium dioxide (page 5, lines 5 to 6). Claim 41 depends on claim 1 and adds that the step of regulating the temperature of the roller 22 and 24 prevents the film 12 from cooling (page 4, lines 18 to 20).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Are Claims 1-3, 5, 22, 25-26, 33-35, 37-39 and 41 properly rejected under 35 U.S.C. 103(a) based on Bentley (US 4,848,314) in view of Kaneko (US 4,421,789) and further in view of Barclay (US 2,899,288) in combination, or optionally further in view of Gilbert (US 3,813,231)?

Serial No. 09/738,591
60246-116

- B. Are Claims 29-32 and 36 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko and further in view of Barclay in combination, or optionally further in view of Gilbert, and further in view of Rickert Jr. (US 4,181,773) or Stewart (US 4,921,646) or Steele (US 5,264,250) or Hommeltoft (US 5,245,100)?
- C. Is Claim 7 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko and further in view of Barclay in combination, or optionally further in view of Gilbert, and further in view of Lindford (US 6,132,801)?

ARGUMENTS

- A. **Obviousness of Claims 1-3, 5, 22, 25-26, 33-35, 37-39 and 41 based on Bentley in view of Kaneko and Barclay in combination, or optionally further in view of Gilbert.**

Claims 1-3, 5, 22, 26, 33-35 and 37-39

The Examiner finally rejected Claims 1-3, 5, 22, 26, 33-35 and 37-39 as being obvious over Bentley in view of Kaneko and further in view of Barclay, and optionally further in view of Gilbert. Bentley teaches a condensing furnace 10 having a thin layer of a corrosion resistant material adhesively bonded to a metal blank 72 (column 4, lines 34 to 42). The Examiner states that Bentley does not disclose applying polar particulates on a sheet material, but states that Kaneko teaches applying silica particles to a film. The Examiner further states that Kaneko does not teach particulates applied to a heated film and embedded with a thermally controlled roller. The Examiner states on pages 3 and 4 of the Final Office Action that Barclay teaches a preheated thermoplastic sheet and a pair of rollers with a cooling fluid that regulates the temperature of the particle coated sheet. Optionally, the Examiner states that Gilbert teaches embedding particles into a polymeric sheet using heat and pressure. The Examiner states that it would be obvious to modify the method of Bentley by incorporating polar particulates as taught by Kaneko and to further incorporate embedding particulates into the sheet using heat and pressure as taught by Barclay, and optionally Gilbert, to provide an improved method. Appellant respectfully disagrees.

The present invention is patentable and strikingly different from the combination of Bentley, Kaneko and Barclay, and optionally Gilbert. As described by the claims, the present

Serial No. 09/738,591
60246-116

invention provides a method for making a film for use with a heat transfer component including the steps of:

...applying a plurality of polar particulates to a surface of a heated film;
then embedding the plurality of polar particulates into the surface of the heated film with a roller;
regulating a temperature of the roller to regulate a temperature of the film; and
then adding the film to the heat transfer component.

[See Claim 1]. Claims 1-3, 5, 7, 22, 25-26, 29-39 and 41 of the present invention all share this same or similar feature. [See Claims 1-3, 5, 7, 22, 25-26, 29-39 and 41].

The claimed invention is not obvious because Barclay and Gilbert are non-analogous art. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). The claimed invention is not obvious because both Barclay and Kaneko are non-analogous art to Bentley, Kaneko and to Appellant's invention.

Neither Barclay nor Gilbert are in Bentley, Kaneko or Appellant's field of endeavor. Bentley is directed to a condensing furnace, Kaneko is directed to a process for treating a surface of an aluminum heat exchanger, and Appellant's invention is directed toward a film for a heat exchanger. In contrast, Barclay is directed to a method for forming an abrasive sheet, and Gilbert is directed to sandpaper. Thus, the field of Barclay and Gilbert relate to abrasives sheets, while Bentley, Kaneko and Appellant's invention relate to heat exchangers. These fields are very different from each other. There is no motivation for one skilled in the art to consider a reference relating to an abrasive material or sandpaper when modifying a heat exchanger. Further, each of these fields have specific and unique design criteria and component characteristics, which are not compatible with each other.

Additionally, neither Barclay nor Gilbert is reasonably pertinent to the Appellant's particular problem. A reference is reasonably pertinent if, even though it may be in a different field

Serial No. 09/738,591
60246-116

of endeavor, it logically would have commended itself to an inventor's attention in considering his problem because of the matter with which it deals. In re Clay, 966 F. 2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992). As discussed above, Barclay and Gilbert are clearly not within the field of heat exchangers, which is the subject to which Appellant's invention is directed. Further, Barclay and Gilbert do not logically commend themselves to the attention of an inventor seeking to solve problems present in heat exchangers. This is because Barclay deals with the problem of creating an abrasive surface by securing an abrasive grit to a backing to form sandpaper, and Gilbert deals with the problem of providing an improved abrasive product. Sandpaper and abrasive surfaces are rubbed against another surface to grind down the other surface. Therefore, the abrasive grit must be strongly secured to a backing so that the abrasive grit can function. This problem is not present in a heat exchanger that is used to exchange heat between two fluids and is far removed from Appellant's problem of creating a film for a heat exchanger with a high surface energy having improved wettability properties so that liquid condensate spreads over the polar surface of the film instead of forming droplets that can spread into the atmosphere. Barclay and Gilbert are non-analogous art, and the claimed invention is not obvious.

Additionally, the claimed invention recites that a roller embeds a plurality of polar particulates into a surface of a heated film. The Examiner refers to Gilbert as teaching embedding particles with heat and pressure. Gilbert discloses that "after the film has cooled, a uniform layer of an abrasive or grit was evenly distributed over the surface of the same" (column 4, lines 24 to 26). Additionally, Gilbert discloses that a platen (column 4, line 28) is used to press the abrasive particles into the film. The platen is pressed against the abrasive grit and backing for 30 minutes at a temperature of about 75 to 100°C (column 4, lines 26 to 34).

In Gilbert, the abrasive or grit is not added to the film when the film is heated, but is rather added to the film when the film is cooled. Additionally, a platen is not a roller. A platen is a planar surface that applies a planar force against another surface. A roller does not apply a planar pressure against a film. A roller also does not apply a pressure against a film for 30 minutes as disclosed in Gilbert. Instead, a roller only briefly contacts a surface as the surface is passes under the roller. Therefore, even if the heat and pressure features of Gilbert were added to Bentley, Kaneko and Barclay, these features would teach using a platen to press an abrasive grit on a cooled backing. These features would not disclose, suggest or teach employing a roller to embed a plurality of polar

Serial No. 09/738,591
60246-116

particulates into a surface of a heated film as claimed. Therefore, even if the features of Gilbert are added to Bentley, Kaneko and Barclay, the combination would not teach, suggest or disclose the claimed invention.

The claimed invention is also not obvious because there is no reason or motivation to employ abrasive particles on a film of a heat exchanger as taught by Barclay and Gilbert. A heat exchanger exchanges heat between two fluids, and adding an abrasive surface would provide no benefit. There is no motivation to consider adding the abrasive particles of Barclay and Gilbert for use with a heat exchanger. Therefore, there is no motivation to modify Bentley and Kaneko in the manner suggested by the Examiner.

Claim 25

Claim 25 is not obvious. Claim 25 recites that the plurality of polar particulates is a germicide. None of the references individually disclose, suggest or teach a germicide, and therefore the references together do not teach this feature. Bentley does not disclose any polar particulates. Kaneko discloses silica coated on a film. Both Barclay and Gilbert teach applying an abrasive material to a sheet. None of the references individually teach employing a germicide on a film. Therefore, the references together do not disclose, suggest or teach employing a germicide on a film. The claimed invention is not obvious, and Appellant respectfully requests that the rejection be withdrawn.

Claim 41

Claim 41 is not obvious. Claim 41 recites the step of regulating a temperature of a roller to prevent a film from cooling. The Examiner states that neither Bentley nor Kaneko discloses the step of relating a temperature of a roller. Barclay teaches an upper roller 32 that is provided with a connection 24 to a source of cooling fluid, and a lower roller 30 that may be filled with a cooling fluid (column 2, lines 7 to 10). As the rollers 30 and 32 are provided with a cooling fluid, the rollers 30 and 32 would cool a web 14 of material that passes between the rollers 30 and 32. Appellant's claims recite that the roller prevents the film from cooling. Gilbert also does not disclose, suggest or teach regulating a temperature of a roller. Gilbert teaches film and abrasive particles that are pressed on a backing in a platen press (column 4, lines 26 to 28).

Serial No. 09/738,591
60246-116

Therefore, even when considered together, the references do not disclose, suggest or teach the claimed invention. The claims are not obvious, and Appellant respectfully requests that the rejection be withdrawn.

B. Obviousness of claims 29-32 and 36 based on Bentley in view of Kaneko and Barclay in combination, or optionally further in view of Gilbert, and further in view of Rickert, Jr. or Stewart or Steele or Hommeltoft.

Claims 29-32 and 36

Claims 29-32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bentley in view of Kaneko and further in view of Barclay, and optionally further in view of Gilbert, and further in view of Rickert or Stewart or Steele or Hommeltoft. The Examiner further states that Steele teaches wollastonite, Rickert teaches alumina, Stewart teaches talc and Hommeltoft teaches the use of zirconia and titanium dioxide, and it would be obvious to employ these materials in the heat exchanger of Bentley with Kaneko, Barclay, and optionally Gilbert. Appellant respectfully disagrees.

The claimed invention is not obvious. Claims 29-32, 36 depend on patentable claim 1 and are allowable for the reasons set forth above. Adding these features to Bentley, Kaneko, Barclay, and optionally Gilbert, would not render the claims obvious because it is not obvious to employ the abrasive particles of Barclay and Gilbert in the heat exchanger of Bentley and Kaneko for the reasons set forth above in Section A. The claimed invention is not obvious, and Appellant respectfully requests that the rejection be withdrawn.

C. Obviousness of claim 7 based on Bentley in view of Kaneko and Barclay in combination, or optionally further in view of Gilbert, and further in view of Lindford.

Serial No. 09/738,591
60246-116**Claim 7**

Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Bentley in view of Kaneko and further in view of Barclay, and optionally further in view of Gilbert, and further in view of Lindford. Lindford discloses a method of producing coated particles. The Examiner contends that it would be obvious to coat the silica particles of Kaneko to provide a stronger attachment of the particles to the base. Appellant respectfully disagrees.

The claimed invention is not obvious. Claim 7 depends on patentable claim 1 and is allowable for the reasons set forth above. Adding these features to Bentley, Kaneko, Barclay, and optionally Gilbert, would not render the claims obvious because it is not obvious to employ the abrasive particles of Barclay and Gilbert in the heat exchanger of Barclay for the reasons set forth above in section A. The claimed invention is not obvious, and Appellant respectfully requests that the rejection be withdrawn.

CONCLUSION

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant respectfully requests such an action.

Respectfully Submitted,

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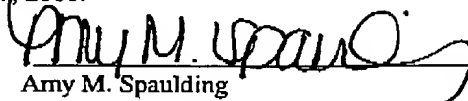
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Serial No. 09/738,591
60246-116

CERTIFICATE OF FACSIMILE

I hereby certify that this appeal brief is being facsimile transmitted to the United States Patent and Trademark Office, 571-273-8300 on January 27, 2006.


Amy M. Spaulding

Serial No. 09/738,591
60246-116

CLAIM APPENDIX

1. A method for making a film for use with a heat transfer component comprising the steps of:
applying a plurality of polar particulates to a surface of a heated film;
then embedding the plurality of polar particulates into the surface of the heated film with a roller;
regulating a temperature of the roller to regulate a temperature of the film; and
then adding the film to the heat transfer component.
2. The method as recited in claim 1 wherein the film is thermoplastic.
3. The method as recited in claim 1 further comprising the step of cooling the film after the step of regulating the temperature of the roller.
5. The method as recited in claim 1 further including the step of applying an adhesive substance to the surface of the film, wherein the step of embedding the plurality of polar particulates comprises pressing the plurality of polar particulates into the adhesive substance with the roller.
7. The method as recited in claim 1 further comprising the step of coating an outer surface of the plurality of polar particulates with a coating.
22. The method as recited in claim 1 wherein the film is one of polyolefin, polyester, polyetherketon, polycetheretherketone, polysulfone, polyethersulfone, polytetrafluoroethylene and fluorinatedhydrocarbon.
25. The method as recited in claim 1 wherein the plurality of polar particulates is a germicide.
26. The method as recited in claim 1 further including the step of employing the plurality of polar particles to increase a surface energy of the film.

Serial No. 09/738,591
60246-116

29. The method as recited in claim 1 wherein the plurality of polar particulates are alumina.
30. The method as recited in claim 1 wherein the plurality of polar particulates are zirconia.
31. The method as recited in claim 1, wherein the plurality of polar particulates are wollastonite.
32. The method as recited in claim 1, wherein the plurality of polar particulates are talc.
33. The method as recited in claim 1 further including the step of using the heat transfer component to exchange heat between a first fluid and a second fluid.
34. The method as recited in claim 33 wherein the step of using the heat transfer component forms a liquid condensate.
35. The method as recited in claim 1 wherein the heat transfer component is a condensing heat exchanger.
36. The method as recited in claim 1 wherein the plurality of particulates are titanium dioxide.
37. The method as recited in claim 1 wherein the plurality of particles are silica.
38. The method as recited in claim 1 further including the step of extruding the heated film.
39. The method as recited in claim 1 further including the step of retaining the film against the roller.

Serial No. 09/738,591
60246-116

41. The method as recited in claim 1 wherein the step of regulating the temperature of the roller prevents the film from cooling.

Serial No. 09/738,591
60246-116

EVIDENCE APPENDIX

None

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Serial No. 09/738,591
60246-116

RELATED PROCEEDINGS APPENDIX

None

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